

## ABSTRACT OF THE DISCLOSURE

This invention relates to an aluminum conductor composite core reinforced cable (ACCC) and method of manufacture. An ACCC cable has a composite core surrounded by at least one layer of aluminum conductor. The composite core comprises a plurality of fibers from at least one fiber type in one or more matrix materials. The composite core can have a maximum operating temperature capability above 100° C or within the range of about -45° C to about 230° C, at least 50% fiber to resin volume fraction, a tensile strength in the range of about 160 Ksi to about 370 Ksi, a modulus of elasticity in the range of about 7 Msi to about 37 Msi and a coefficient of thermal expansion in the range of about  $-0.7 \times 10^{-6}$  m/m/° C to about  $6 \times 10^{-6}$  m/m/° C. According to the invention, a B-stage forming process may be used to form the composite core at improved speeds over pultrusion processes wherein the speeds ranges from about 9 ft/min to about 60 ft/min.